5.07 MISCELLANEOUS MATERIALS

5.07.01 GENERAL

This section covers the inspection, sampling, testing and acceptance of the group of miscellaneous materials specified in the Standard Specifications.

5.07.02 ADMIXTURES FOR PORTLAND CEMENT CONCRETE

(a) Air Entraining Admixtures.

(1) General: These are materials added in the field during mixing to control the amount of air in concrete. They may be manufactured at points outside the State and shipped to the job site without inspection or testing.

(2) Basis of Acceptance.

See Standard Specifications Manual Subsection 1401.

(3) Methods of Inspection and Sampling: The inspection of air entraining admixtures is the responsibility of the Field Engineer. Since they are delivered to the project without inspection, the Engineer must ensure that the product is on the prequalified list and that certifications as specified are available for each lot of material. If the Engineer has doubt as to the condition of the product, the material should be sampled immediately and submitted to the Materials and Research Center for testing. Freezing, settling or separation of components, color fading, long time storage or deficient or excessive air entrainment should be considered reason for testing.

The material should be thoroughly stirred or agitated prior to sampling to ensure that the sample represents all the material in the container. Contamination of the sample must be avoided.

(b) Admixtures for Water Reduction, Set Retardation, Acceleration and Plasticizing.

(1) General. These materials are added in the field during mixing to reduce the amount of mixing water required to produce a concrete of given consistency to retard the setting of the concrete, to accelerate the setting of concrete, or to increase the slump and flowability of concrete for a given water-cement ratio.

They are generally manufactured at points outside the State and are shipped to the project without inspection or testing.

(2) Basis of Acceptance

See Standard Specifications Manual Subsection 1402.

(3) Methods of Inspection and Sampling: The Field Engineer is responsible for the inspection of admixtures. Since they are delivered without inspection, the Engineer must ensure that the product is on the prequalified list and that a certification is available. The material should be inspected for non-uniformity or other undesirable characteristics. If it fails to perform as expected, its use should be discontinued immediately and samples submitted to the Materials and Research Center for tests. Samples should be accompanied by a letter stating the deviation from expected performance.

5.07.03 CALCIUM CHLORIDE

(a) General.

Calcium chloride is used as a dust palliative and as an additive to water bound base courses and concrete. It is supplied in liquid or solid form.

(b) Basis of Acceptance.

See Standard Specifications Manual Subsection 1702.

(c) Methods of Inspection and Sampling.

This material will be inspected at destination and a verification sample is to be obtained from the first unit delivered.

Solid calcium chloride will be sampled by selecting at random not less than three containers. Each container so chosen is to be sampled by scraping aside the top layer to a depth of approximately 25 mm (one inch) and taking samples by means of a sampling thief or other method which will ensure obtaining a representative cross section in the container to a depth of at least 6 inches (150 mm). Precautions must be taken during the sampling to avoid unduly exposure of the sample to atmospheric moisture. The individual samples are immediately and thoroughly mixed to form a representative composite sample which is placed in a moisture tight container for shipment to the laboratory.

If the calcium chloride is in liquid form, use the thief method as described in KT-26 to obtain a 1 liter (1 qt) sample.

5.07.04 REFLECTIVE SHEETING

(a) General.

Reflective sheeting materials are used in the fabrication of signs and other traffic control devices to improve their night time visibility. Sheeting is furnished in the following colors: white, yellow, red, orange, green, blue, brown, fluorescent orange, fluorescent yellow and fluorescent yellow/green. There are two categories of sheeting: Engineer Grade and High Intensity.

(b) Types of Packaging

These materials may be packaged in rolls of various widths or in flat sheets, and are shipped to the point of sign fabrication without inspection.

(c) Prequalification

(1) Qualifying Samples: Manufacturers will be requested to submit qualifying samples of each type and color of sheeting covered by the Standard Specification. All samples must be from a normal production run.

(2) Testing: The qualifying samples will be forwarded to the Engineer of Tests, Materials and Research Center, Department of Transportation, 2300 Van Buren, Topeka, Kansas 66611, where

they will be tested for compliance with all requirements of the applicable specification. Each manufacturer will be notified of the test results on his own samples.

(3) Qualified Reflective Sheeting: Reflective sheeting manufacturers whose qualifying samples comply with the requirements of the specification will be placed on a prequalified list. No reflective sheeting shall be used on State work unless it has been prequalified. Manufacturers will be required to re-qualify at intervals as determined by the Chief, Bureau of Materials and Research, or if there is a change in the material.

(d) Basis of Acceptance

(1) Prequalification as required by 5.07.04.03.

(2) Satisfactory results of tests conducted at the Materials and Research Center. Each lot by color of sheeting will be sampled and tested for physical properties as necessary to ensure that the sheeting complies with the specifications.

(e) Method of Sampling

All reflective sheeting will be sampled according to subsection **5.19-4.**

5.07.05 ELECTRIC LIGHTING AND TRAFFIC SIGNAL EQUIPMENT

(a) General.

These materials are usually manufactured at points outside the State and shipped directly to the project or to the contractor's or distributor's warehouses for re-shipment to the project.

(b) Basis of Acceptance.

See Standard Specifications Manual Subsection 1703.

(c) Methods of Inspection and Sampling.

When miscellaneous hardware and span and guy wire is shipped from a warehouse located within or near State borders, arrangements will be made to have the various items sampled and tested prior to shipment. When these items arrive on the project without previous sampling and testing, they will be inspected and sampled by the Field Engineer. The Field Engineer should review test reports and certifications to ensure that all items on the project are covered by the necessary documents, and should be satisfied that the entire shipment meets the required specifications.

(d) Reporting.

A report covering items accepted by certification and visual inspection is issued by the Field Engineer. Items sampled and tested by the Materials and Research Center are covered by a copy of the laboratory report.

5.07.06 CENTER MOUNT REFLECTORS

(a) General.

Center mount reflectors will be produced at a manufacturing plant equipped to fabricate reflectors and are made in three colors; red, white and yellow. They are packed in protective boxes and shipped to a supplier, contractor, sign fabricator, district or headquarters sign shop.

(b) Basis of Acceptance.

See Standard Specifications Manual Subsection 2203.

(c) Methods of Inspection and Sampling.

Inspection of center mount reflectors may be made either at source or destination. In either case the inspection will be made by a representative of the Department who will take samples and submit them to the Materials and Research Center.

The inspector will select at random the required number of reflectors from each quantity of 5,000 or fraction thereof. Each color must be sampled. The reflectors must be packed for shipment to the laboratory in such a manner that the face of the reflector will not be scratched or damaged during shipment. See subsection **5.19.02** for the required sample size.

5.07.07 BEARING PADS OR MATS FOR STRUCTURES

(a) General.

The Elastomeric and preformed fabric pads are generally produced at points outside the State and shipped to the project without inspection. Canvas and red lead mats are formed on the project.

(b) Basis of Acceptance.

See Standard Specifications Manual Subsection 1701.

(1) Elastomeric pads are accepted on the basis of an approved Type B certification and by visual inspection by the Field Engineer.

(2) Preformed Fabric Pads are accepted on the basis of a Type D certification and visual inspection by the Field Engineer.

(3) Lead sheets are accepted on the basis of Field Engineer's visual inspection.

(c) Inspection and Reporting.

All inspection and the issuance of acceptance reports is the responsibility of the Field Engineer.

5.07.08 PERMANENT SIGNS

(a) General:

Permanent signs are fabricated at plants both within Kansas and outside Kansas. The assembled signs are shipped to the project without inspection.

(b) Basis of Acceptance:

A Type E certification will be furnished by the fabricator for all signs shipped to a specific project. A listing of all materials used in the sign fabrication along with the laboratory numbers under which each material was accepted will be shown on the certification. Each sign will be clearly marked on the back with an identification number (Lot. No., etc.) singular to each specific project. This identification will also be clearly defined on the certification so that field identification of the signs can be made with the certification.

(1) Process Ink, Reflective Sheeting and Fasteners are accepted based on satisfactory results of tests conducted at the Materials and Research Center.

(2) Sign Blanks and Structural Panels are accepted based on the receipt of an approved Type D certification.

(3) The Project Engineer will issue a test report, accepting or rejecting the signs, based on receipt of the Type E certification and visual inspection of the signs when they arrive on the project.